Commonwealth of Kentucky
Division for Air Quality

PERMIT APPLICATION SUMMARY FORM

Completed by: Donald Newell

GENERAL INFORMATION:

Name:	Electro Cycle, Inc.
Address:	231 Tucker School House Rd. Madisonville, KY 42431
Date application received:	October 22, 2003
SIC/Source description:	3355/ Secondary Aluminum Production Plant
Source I. D. No.:	021-107-00121
Source AI No.:	APE20040001
Activity No.:	1880
Permit number:	V-05-050

APPLICATION TYPE/PERMIT ACTIVITY:

[X]Initial issuance
[ ] Permit modification
__Administrative
__Minor
__Significant
[ ] Permit renewal
[ ] General permit
[ ] Conditional major
[X] Title V
[ ] Synthetic minor
[X] Operating
[ ]Construction/operating

COMPLIANCE SUMMARY:

[ ] Source is out of compliance
[X] Compliance certification signed
[ ] Compliance schedule included

APPLICABLE REQUIREMENTS LIST:

[ ] NSR
[ ] PSD
[ ] Netted out of PSD/NSR
[ ] NSPS
[X] NESHAPS
[ ] Not major modification per 401 KAR 51:017, 1(23)(b) or 51:052,1(14)(b)
[X] SIP
[ ] Other

MISCELLANEOUS:

[ ] Acid rain source
[ ] Source subject to 112(r)
[ ] Source applied for federally enforceable emissions cap
[ ] Source provided terms for alternative operating scenarios
[X] Source subject to a MACT standard
[ ] Source requested case-by-case 112(g) or (j) determination
[ ] Application proposes new control technology
[X] Certified by responsible official
[ ] Diagrams or drawings included
[ ] Confidential business information (CBI) submitted in application
[ ] Pollution Prevention Measures
[ ] Area is non-attainment (list pollutants):

EMISSIONS SUMMARY[(1)]:

Pollutant	Potential (tpy)	Actual (tpy)[(2)]
PM/PM10	1883.35	7.51
SO_2	52.53	7.51
NOx	13.30	25.54
VOC	266.78	25.66
CO	1.11	0.66
Hydrochloric Acid (HAP)	6.97	5.5E-04
Total HAPs	7.59	0.12

Notes:
(1) Please refer Appendix A of the Statement of Basis for detailed emission calculations (Pages 1 through 4).
(2) Actual emissions are based on Emissions Inventory System report for 2004.

SOURCE PROCESS DESCRIPTION:

Electro Cycle, Inc. (Electro Cycle) is a secondary aluminum alloy ingots production plant. The source is located in Madisonville, KY and produces alloy ingots for the metal casting industry. The source melts and alloys a variety of recycled aluminum products to produce these ingots. The transforming of recycled aluminum scrap into alloy ingot at the source is a four-step process. These steps are: scrap receiving, scrap shredding, delacquering kiln (kiln) processing and induction furnace melting.

The source melts several types of scrap in the induction furnace. These include industrial scrap from can manufacturers that arrives densified either in a bale or a briquette. The source also processes loose extrusion turnings, wheel turnings and can process scrap forms, i.e. extrusion scrap, wheels, etc. Dealer scrap is the only scrap material fed into the kiln that contains the contaminants required for D/F formation. Most material used to make up the charge to the induction furnace is in the form of densified bales or briquettes. This material must be processed further, before it is ready to charge into the induction furnace. This processing begins at the #1 mill (Mac/Saturn-low speed-high torque mill) with 3 100 HP motors in tandem that drive the 2 hydraulic motors. The scrap is conveyed up and into the #2 mill (American Pulverizer-300 HP ring mill) for further sizing. Ferrous scrap is then removed magnetically and the milled scrap is conveyed to the kiln where the organic coatings are thermally removed and passed into the afterburner for ultimate destruction. The afterburner oxidizes the unburned hydrocarbon vapors in the gas stream that is vented from the kiln. The source uses a electrically operated induction furnace to provide the thermal energy to melt the aluminum scrap. The induction furnace has a capacity of 7 tons. Material is charged from the kiln to the induction furnace and the molten metal is poured into sow molds for solidification.

The particulate, acid gas and D/F emissions from the kiln are controlled by a baghouse that uses lime and activated carbon coated bags for additional acid gas and D/F control. The manufacturer specified particulate control efficiency is 99.3% and the afterburner control efficiency is 99.7% for hydrocarbon destruction. The kiln has a rated burner capacity of 6.4 mmBTU/hr and the afterburner has a rated capacity of 4.2 mmBTU/hr. The material exit temperature from the kiln is 750-850 ˚F and the gas temperature going to the afterburner is 250˚F. The afterburner has an operating temperature of

1400-1450˚F and an exit temperature of 313˚F. The afterburner must operate at a temperature greater than 1400˚F to destroy organic compounds.

The potential to emit (as defined in 401 KAR 52:001, Section 1 (56)) of any single HAP is less than ten (10) tons per year and the combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not a major source of HAPs . However, the provisions *40 CFR 63, Subpart RRR, National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production*, are applicable to area sources that have the potential to produce dioxin/furan (D/F) compounds.

Pursuant to 40 CFR Part 63.1500 (c), the requirements of 40 CFR 63, Subpart RRR, pertaining to dioxin and furan (D/F) emissions and associated operating, monitoring, reporting and recordkeeping requirements apply to the delacquering kiln and induction furnace. Pursuant to 40 CFR Part 63.1500 (b), the requirements of 40 CFR 63, Subpart RRR, are included in the permit for the aluminum scrap shredder. As such, the applicable final rule requirements of 40 CFR Part 63, Subpart RRR, promulgated on December 30, 2002, are incorporated into this permit.

The potential to emit (as defined in 401 KAR 52:001, Section 1 (56)) of PM10 and VOC is greater than one hundred (100) tons per year. Therefore, the source is a major source and is subject to the provisions of 401 KAR 52:020.

This permit is the source’s first plant-wide Title V operating permit.